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EXAMINER

YAM, STEPHEN K

ART UNIT

PAPER NUMBER

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MAIL DATE

DELIVERY MODE

12/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

This action is in response to Amendments and remarks filed on August 28, 2008. Claims 3-5 are currently pending.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Piot et al. in view of Jackson US 4,794,384.

Regarding Claim 3, Piot et al. teach (see Fig. 1-3) a method for processing optical signals in a computer mouse (110), characterized in that, a laser beam (see Col. 4, line 90 is provided to illuminate the surface (120) of an object, laser speckles are produced in the vicinity of the illuminated object surface (see Col. 4, lines 19-22); when the mouse is moving (see Col. 4, lines 43-57), the signals of the laser speckles are received by a photo sensor ((320a), (320b)) installed in the mouse, and the signals are processed (see Col. 4, lines 43-57), so as to calculate the quantity of laser speckle pulses received by the photo sensor, and to determine the relative displacement between the photo sensor and the illuminated object surface producing laser speckles (see Col. 14, line 65 to Col. 15, line 18) on the basis of the average size of the speckles (see Col. 18, lines 43-56). Piot et al. do not teach the processing, so as to calculate the quantity of laser speckle pulses received by the photo sensor. Jackson teaches (see Fig. 2) a similar

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device, with processing laser speckle and laser speckle interference signals (see Col. 4, lines 25-36) so as to calculate the quantity of laser speckle pulses received by the photo sensor (see Col. 6, lines 56-63 and Col. 7, lines 5-33). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the processing, so as to calculate the quantity of laser speckle pulses received by the photo sensor, as taught by Jackson, in the method of Piot et al., to improve accuracy in the detection of displacement quantity.

Regarding Claim 4, Piot et al. teach said photo sensor has groups (rows and columns) of photoelectric sensing units (see Fig. 4B-4D and col. 9, lines 45-50), wherein each group comprises two or more photoelectric sensing units aligned in a line (row/column); after laser speckle signals on the object surface illuminated by laser beams are received by said groups of photoelectric sensing units, relevant photoelectric signals are shaped (see Col. 14, lines 67-19) to calculate the size of the component of the relative displacement vector between the photo sensor and the illuminated object surface lying in the direction of the alignment of photoelectric sensing units (see Col. 10, lines 53-56); in the meantime, the direction of said component of the relative displacement vector is determined by the skewing of the electric signals produced by these two or more photoelectric sensing units (see Col. 14, line 65 to Col. 15, line 18). Piot et al. do not teach the relevant photoelectric signals as amplified. Jackson teaches the signals as amplified (see Col. 7, line 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the signals as amplified, as taught by Jackson, in the method of Piot et al. in view of Jackson, to produce an improved photoelectric signal for greater contrast of speckle images and greater displacement detection sensitivity.

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Regarding Claim 5, Piot et al. in view of Jackson teach said photo sensor has at least two groups (row and column) of photoelectric sensing units, wherein each group comprises two or more photoelectric sensing units aligned in a line (see Fig. 4B-4D), and at least one group has an aligning direction different from the others (row vs. column), at least two of the groups are intersectable with each other and use common units (row and column); after laser speckle signals on the object surface illuminated by laser beams are received, relevant photoelectric signals are amplified and shaped by these groups of photoelectric sensing units to calculate the size and direction of the component of relative displacement vector between the photo sensor and the illuminated object surface of the respective group (Δx , Δy) (see Col. 14, line 65 to Col. 15, line 18), and the relative displacement vector between the photo sensor and the illuminated object surface in the two-dimensional plane is calculated on the basis of the size and direction of the components of said relative displacement vector calculated by two or more groups in different directions (x, y) and the intersection angle (90 degrees) between the components in different directions.

Response to Arguments

3. Applicant's arguments filed August 28, 2008 have been fully considered but they are not persuasive.

Examiner initially notes that Applicant appears to have labeled in incorrect application number on the August 28, 2008 response. The correct application number should be 10/531,943.

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Regarding Claim 3, Applicant argues that "Piot teaches away from the method recited in amended claim 3" (Applicant's 8/28/2008 response 5), as "Piot's method requires the new speckle image data signal be collected and stored in the storage medium" (*id.*) and further, that "Piot's method requires a method of cross-correlation analysis, which is distinctly different from the method recited in amended claim 3." (*id.*). Without analyzing the accuracy of Applicant's allegations on the differences between the Piot and Applicant's inventions, Examiner asserts that the claim language within Claim 3 does not recite any limitations preventing a speckle image data signal from being collected and stored in the storage medium to perform the steps recited in the claim. Furthermore, the claim language in Claim 3 also does not recite any limitations preventing a cross-correlation analysis in performing the Claim 3 method steps. While it may be true that there are differences between the Piot and Applicant's inventions (and Examiner does not admit to such a difference), Examiner asserts that the differences must be reflected in Applicant's claim language. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant further recites similar arguments with respect to the Jackson reference, alleging differences between the Jackson and Applicant's invention which are not recited in the claim language. Accordingly, these differences cannot be given patentable weight.

As such, this rejection is proper.

Conclusion

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4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEPHEN YAM whose telephone number is (571)272-2449. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571)272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Stephen Yam/
Primary Examiner, Art Unit 2878